

# S-TIM 8

Code(d) **596392**

Code(e) **599390**

Refractive Index $n_d$	<b>1.59551</b> 1.595509	Abbe Number $\nu_d$	<b>39.24</b>	Dispersion $n_F-n_C$	<b>0.015176</b>
Refractive Index $n_e$	1.599106	Abbe Number $\nu_e$	38.97	Dispersion $n_F-n_C'$	0.015375

Refractive Indices		
$\lambda(\mu\text{m})$		
$n_{2325}$	2.32542	1.56075
$n_{1970}$	1.97009	1.56615
$n_{1530}$	1.52958	1.57212
$n_{1129}$	1.12864	1.57778
$n_t$	1.01398	1.57980
$n_s$	0.85211	1.58347
$n_{A'}$	0.76819	1.58609
$n_r$	0.70652	1.58854
$n_C$	0.65627	1.59103
$n_{C'}$	0.64385	1.59173
$n_{\text{He-Ne}}$	0.6328	1.59240
$n_D$	0.58929	1.59538
$n_d$	0.58756	1.59551
$n_e$	0.54607	1.59911
$n_F$	0.48613	1.60621
$n_{F'}$	0.47999	1.60711
$n_{\text{He-Cd}}$	0.44157	1.61382
$n_g$	0.435835	1.61501
$n_h$	0.404656	1.62267
$n_i$	0.365015	1.63661

Constants of Dispersion Formula	
$A_1$	1.37262713E+00
$A_2$	1.12636276E-01
$A_3$	1.39786421E+00
$B_1$	1.03220068E-02
$B_2$	5.50195044E-02
$B_3$	1.47735609E+02

Chemical Properties	
Water Resistance(Powder) Group RW(P)	1
Acid Resistance(Powder) Group RA(P)	1
Weathering Resistance(Surface) Group W(S)	2~3
Acid Resistance(Surface) Group SR	1.0
Phosphate Resistance PR	1.0

Mechanical Properties	
Young's Modulus E ( $10^9\text{N/m}^2$ )	750
Rigidity Modulus G ( $10^8\text{N/m}^2$ )	305
Poisson's Ratio $\sigma$	0.231
Knoop Hardness Hk[Class]	530   5
Abrasion Aa	133
Photoelastic Constant $\beta$ (nm/cm/ $10^9\text{Pa}$ )	2.79

Temperature Coefficients of Refractive Index							
Range of Temperature (°C)	dn/dT relative ( $10^{-6}/^\circ\text{C}$ )						
	t	C'	He-Ne	D	e	F'	g
-40~-20	1.3	1.7	1.7	1.9	2.2	2.8	3.4
-20~ 0	1.3	1.8	1.8	2.0	2.3	2.9	3.5
0~20	1.3	1.8	1.9	2.1	2.3	3.0	3.7
20~40	1.4	1.9	1.9	2.1	2.4	3.1	3.8
40~60	1.4	1.9	2.0	2.2	2.5	3.2	4.0
60~80	1.5	2.0	2.0	2.3	2.6	3.3	4.1

Partial Dispersions	
$n_C-n_t$	0.011234
$n_C-n_{A'}$	0.004942
$n_d-n_C$	0.004479
$n_e-n_C$	0.008076
$n_g-n_d$	0.019504
$n_g-n_F$	0.008807
$n_h-n_g$	0.007657
$n_i-n_g$	0.021600
$n_C-n_t$	0.011938
$n_e-n_{C'}$	0.007372
$n_F-n_e$	0.008003
$n_i-n_{F'}$	0.029504

Relative Partial Dispersions	
$\theta_{C,t}$	0.7402
$\theta_{C,A'}$	0.3256
$\theta_{d,C}$	0.2951
$\theta_{e,C}$	0.5322
$\theta_{g,d}$	1.2852
$\theta_{g,F}$	0.5803
$\theta_{h,g}$	0.5045
$\theta_{i,g}$	1.4233
$\theta'_{C,t}$	0.7765
$\theta'_{e,C'}$	0.4795
$\theta'_{F,e}$	0.5205
$\theta'_{i,F'}$	1.9190

Deviation of Relative Dispersions $\Delta\theta$ from "Normal"	
$\Delta\theta_{C,t}$	0.0094
$\Delta\theta_{C,A'}$	0.0022
$\Delta\theta_{g,d}$	0.0020
$\Delta\theta_{g,F}$	0.0023
$\Delta\theta_{i,g}$	0.0269

Thermal Properties	
Strain Point StP (°C)	529
Annealing Point AP (°C)	560
Transformation Temperature Tg (°C)	585
Yield Point At (°C)	610
Softening Point SP (°C)	695
Expansion Coefficients (-30~+70°C)	84
$\alpha$ ( $10^{-7}/^\circ\text{C}$ ) (+100~+300°C)	104
Thermal Conductivity k (W/m·K)	1.03

Coloring			
$\lambda_{80}$	380	$\lambda_5$	350
$\lambda_{70}$			

Internal transmission			
$\lambda_{0.80}$	378	$\lambda_{0.05}$	351

CCI		
B	G	R
0.00	0.82	0.82

Internal Transmittance	
$\lambda(\text{nm})$	$\tau$ 10mm
280	
290	
300	
310	
320	
330	
340	
350	0.02
360	0.27
370	0.64
380	0.84
390	0.928
400	0.962
420	0.982
440	0.988
460	0.990
480	0.992
500	0.994
550	0.997
600	0.997
650	0.996
700	0.997
800	0.998
900	0.997
1000	0.996
1200	0.996
1400	0.994
1600	0.993
1800	0.983
2000	0.968
2200	0.935
2400	0.915

Other Properties	
Bubble Quality Group B	
Specific Gravity d	2.63
Remarks	

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